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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| EXAMINER |
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DANIELSEN, NATHAN ANDREW

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| ART UNIT | PAPER NUMBER |
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2627

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 02/16/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/517,918 | Applicant(s) HELLMIG, JOACHIM WILHELM | |
| | Examiner Nathan Danielsen | Art Unit 2627 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-32 are pending. Claims 15-32 were added in applicant's amendment filed 25 October 2006.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 25 October 2006 has been entered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-13, 17, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1 and 13, the added material, which is new matter added to the claims, is as follows: "consists of only three erase periods". The claimed feature lacks a written description and hence is new matter as not being found in the original disclosure. Specifically, applicant lacks disclosure for no more than, and no less than, three erase periods (see page 2, lines 26-34).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8, 11-14, 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker (US Patent Application Publication 2002/0003762).

Regarding claims 1, 11, 14, 19, and 22, Dekker discloses a method (and associated devices and similar methods) of recording marks representing data in an information layer of a record carrier by irradiating the information layer by means of a pulsed radiation beam, each mark being written by a sequence of pulses, the recorded marks being erasable by irradiating the information layer with an erase radiation beam (figure 1). However, Dekker fails to explicitly disclose the number of pulses in the erase pattern and the relationship between the different power levels in erase pattern, but discloses in ¶ 37 where, with respect to figure 3, it would "be apparent to those skilled in the art that embodiments of a recording device according to the invention using more power levels can be realized by adding additional outputs to the current source 61 and by extending the switch-unit 62, and that a single output B of the current source 61 providing a varying current can, as an alternative, be replaced by several outputs each providing a different current while the setting means 65 select the appropriate output for setting the bias power level P_b at any time". Therefore, one of ordinary skill in the art at the time the invention was made would also have been able to optimize the number of pulses and the level of each pulse through routine experimentation (see MPEP § 2144.05(II)(A)) for the purpose of selecting an appropriate output erase power to prevent cross-erasure of data on adjacent tracks (¶s 7, 29, and 37).

Regarding claims 2 and 12, Dekker discloses everything claimed, as applied to claims 1 and 11, respectively. Additionally, Dekker discloses where said third erase power level is lower than said first erase power level (the power levels may be adjusted by using additional outputs and selected appropriately, as explained in claim 1).

Therefore, one of ordinary skill in the art at the time the invention was made would also have been able to optimize the number of pulses and the level of each pulse through routine experimentation

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(see MPEP § 2144.05(II)(A)) for the purpose of selecting an appropriate output erase power to prevent cross-erasure of data on adjacent tracks (§s 7 and 37).

Regarding claims 3 and 13, Dekker discloses everything claimed, as applied to claims 1 and 11, respectively. Additionally, Dekker discloses where said first erase power level and said third erase power level are substantially equal and lower than said second erase power level (the power levels may be adjusted by using additional outputs and selected appropriately, as explained in claim 1).

Therefore, one of ordinary skill in the art at the time the invention was made would also have been able to optimize the number of pulses and the level of each pulse through routine experimentation (see MPEP § 2144.05(II)(A)) for the purpose of selecting an appropriate output erase power to prevent cross-erasure of data on adjacent tracks (§s 7 and 37).

Regarding claim 4, Dekker discloses everything claimed, as applied to claim 1. Additionally, Dekker discloses where said second erase power level is lower than the write power level (w) of said pulses of said pulsed radiation beam for recording marks (figure 1).

Regarding claim 5, Dekker discloses everything claimed, as applied to claim 1. Additionally, Dekker discloses where said third erase power level is higher than the bias power level (b) between said pulses of said pulsed radiation beam for recording marks (figure 1).

Regarding claim 6, Dekker discloses everything claimed, as applied to claim 1. Additionally, Dekker discloses where said first erase period and said second erase period are shorter than said third erase period (the power levels and timing for each power level may be adjusted by using additional outputs and selected appropriately, as explained in claim 1).

Therefore, one of ordinary skill in the art at the time the invention was made would also have been able to optimize the number of pulses as well as the level and duration of each pulse through routine experimentation (see MPEP § 2144.05(II)(A)) for the purpose of selecting an appropriate output erase power to prevent cross-erasure of data on adjacent tracks (§s 7 and 37).

Regarding claim 7, Dekker discloses everything claimed, as applied to claim 1. Additionally, Dekker discloses where the sum of said first erase period and said second erase period is shorter than

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half the shortest mark being recorded (the power levels and timing for each power level may be adjusted by using additional outputs and selected appropriately, as explained in claim 1).

Therefore, one of ordinary skill in the art at the time the invention was made would also have been able to optimize the number of pulses as well as the level and duration of each pulse through routine experimentation (see MPEP § 2144.05(II)(A)) for the purpose of selecting an appropriate output erase power to prevent cross-erasure of data on adjacent tracks (§§ 7 and 37).

Regarding claim 8, Dekker discloses everything claimed, as applied to claim 1. Additionally, Dekker discloses where said information layer has a phase which is reversibly changeable between a crystal phase and an amorphous phase (§ 2).

7. Claims 15-18, 20, 21, and 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker, in view of Ichihara (JP Patent Application Publication 2000-123367).

Regarding claims 25 and 27, Dekker discloses a method (and associated device) of recording marks on a record carrier, the method comprising the acts of:

irradiating the record carrier with a radiation beam, each mark being written by a sequence of pulses (§ 13); and

erasing recorded marks by irradiating the record carrier with an erase radiation beam (§ 13);

wherein the recorded marks represent data including a high period and a low period (figure 1).

However, Dekker fails to disclose where a start of the erase radiation beam substantially coincides with a beginning of the low period.

In the same field of endeavor, Ichihara discloses where a start of the erase radiation beam substantially coincides with a beginning of the low period (figure 1B).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the erase pattern of Dekker by implementing the timing of Ichihara, for the purpose of improving the recording and erasure of data on a phase change medium (§ 35).

Regarding claims 29 and 31, Dekker discloses a method (and associated device) of recording marks on a record carrier, the method comprising the acts of:

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irradiating the record carrier with a radiation beam, each mark being written by a sequence of pulses (§ 7); and

erasing recorded marks by irradiating the record carrier with an erase radiation beam (§ 7);

wherein the recorded marks represent data including a high period and a low period (figure 1).

However, Dekker fails to disclose where a start of the erase radiation beam substantially coincides with a beginning of the low period.

In the same field of endeavor, Ichihara discloses where the three erase periods substantially fill the low period (figure 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the erase pattern of Dekker by implementing the timing of Ichihara, for the purpose of improving the recording and erasure of data on a phase change medium (§ 35).

Regarding claims 15, 17, 20, 23, 30, and 32, Dekker discloses everything claimed, as applied to claims 14, 1, 19, 22, 29, and 31, respectively. Additionally, Dekker discloses where the marks represent data including a high period and a low period (figure 1). However, Dekker fails to disclose where a start of the erase radiation beam substantially coincides with a beginning of the low period.

In the same field of endeavor, Ichihara discloses where a start of the erase radiation beam substantially coincides with a beginning of the low period (figure 1B).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the erase pattern of Dekker by implementing the timing of Ichihara, for the purpose of improving the recording and erasure of data on a phase change medium (§ 35).

Regarding claims 16, 18, 21, 24, 26, and 28, Dekker discloses everything claimed, as applied to claims 14, 1, 19, 22, 25, and 27, respectively. Additionally, Dekker discloses where the marks represent data including a high period and a low period (figure 1). However, Dekker fails to disclose where the three erase periods substantially fill the low period.

8. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker, in view of Nagata et al (US Patent 6,456,584; hereinafter Nagata).

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Regarding claims 9 and 10, Dekker discloses everything claimed, as applied to claim 1. However, Dekker fails to disclose where the record carrier comprises at least two layers with one layer being at least partially transparent.

In the same field of endeavor, Nagata discloses where said record carrier comprises at least two information layers (col. 3, lines 51-59) and at least one of said two information layers is at least partially transparent layer (col. 4, lines 44-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the record carrier of Dekker with the structure of Nagata for the purpose of recording data on a record carrier having a large storage capacity (col. 5, lines 65-67).

Response to Arguments

9. Applicant's arguments filed 25 October 2006 have been fully considered but they are not persuasive.

a. Applicant argues that Dekker does not disclose applicant's claimed invention (pages 18 and 19). The examiner disagrees. The portions of Dekker cited in the previous Office Action do not appear to anticipate applicant's claimed invention. However, ¶ 37 makes clear several acceptable modifications that can be made to the preferred embodiments, which therefore render applicant's claimed invention obvious.

Closing Remarks/Comments

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Danielsen whose telephone number is (571) 272-4248. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:00 PM Eastern Time.

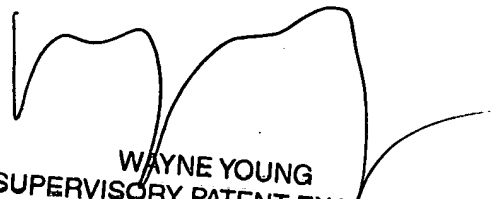
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nathan Danielsen
02/12/2007

ND



WAYNE YOUNG
SUPERVISORY PATENT EXAMINER